Search Results -

Terms	Documents
L8	10

Database:
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US Pre-Grant Publication Full-Text Database
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Search: | L9 |

[Refine Search]

[Recall Text ⬍]   [Clear]   [Interrupt]

Search History

DATE: Monday, April 26, 2004   Printable Copy   Create Case

Set Name Query	Hit Count	Set Name
side by side		result set

DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=OR

Set Name	Query	Hit Count	Set Name
L9	L8	10	L9
L8	L7 not I5	10	L8
L7	L6 not I2	10	L7
L6	((agent with simulat$) and schedul$) and acd and @ad<=20000214	11	L6
L5	L4 not I2	5	L5
L4	((agent with simulat$)same schedul$) and @ad<=20000214	12	L4
L3	L2 not I1	6	L3
L2	(schedul$ with agent with simulat$) and @ad<=20000214	7	L2
L1	(schedul$ with agent with simulat$) and acd and @ad<=20000214	1	L1

END OF SEARCH HISTORY

☐ [Generate Collection] [Print]

US-PAT-NO: 6449356
DOCUMENT-IDENTIFIER: US 6449356 B1

TITLE: Method of multi-media transaction processing

DATE-ISSUED: September 10, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dezonno; Anthony J.	Chicago	IL		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Rockwell Semiconductor Systems, Inc.	Newport Beach	CA			02

APPL-NO: 09/ 084815   [PALM]
DATE FILED: May 26, 1998

INT-CL: [07] H04 M 3/00

US-CL-ISSUED: 379/265.01; 379/265.13, 379/265.09, 379/265.02
US-CL-CURRENT: 379/265.01; 379/265.02, 379/265.09, 379/265.13

FIELD-OF-SEARCH: 379/265, 379/266, 379/88.13, 379/34, 379/93.17, 379/201, 379/203, 379/210, 379/267, 379/93.25, 379/212, 379/88.17, 379/88.19, 379/88.2, 379/269, 379/308

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

[Search Selected] [Search ALL] [Clear]

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4289934	September 1981	Pitroda et al.	379/269
☐	4979171	December 1990	Ashley	370/525
☐	5127004	June 1992	Lenihan et al.	370/525
☐	5268903	December 1993	Jones et al.	370/384
☐	5335269	August 1994	Steinlicht	379/266
☐	5365581	November 1994	Baker et al.	379/196
☐	5384841	January 1995	Adams et al.	379/266

	5469504	November 1995	Blaha		379/265
	5500891	March 1996	Harrington et al.		379/265
	5544232	August 1996	Baker et al.		379/88.25
	5546456	August 1996	Vilsoet et al.		379/265
	5619725	April 1997	Gordon		710/19
	5884032	March 1999	Bateman et al.		709/204
	5982873	November 1999	Flockhart et al.		379/266
	6021428	February 2000	Miloslavsky		709/206
	6038308	March 2000	Anthos et al.		379/219
	6046762	April 2000	Sonesh et al.		348/16
	6058163	May 2000	Pattison et al.		379/34
	6058435	May 2000	Sassin et al.		709/331
	6111947	August 2000	Galgano, Jr. et al.		379/269
	6122364	September 2000	Petrunka et al.		379/265
	6181366	January 2001	Dezonno et al.		379/265

ART-UNIT: 2645

PRIMARY-EXAMINER: Tsang; Fan

ASSISTANT-EXAMINER: Escalante; Ovidio

ATTY-AGENT-FIRM: Welsh & Katz, Ltd.

ABSTRACT:

A method and apparatus are provided for processing multi-media telecommunication transactions by a call processing center. The method includes the steps of detecting a call of the multi-media telecommunication transactions by a host computer of the call processing center and transferring a transaction request from the host to a call processor for assignment of an agent to the call. The method further includes the steps of transferring an identifier of the assigned agent from the call processor to the host and transferring the call received from the host to the assigned agent.

51 Claims, 4 Drawing figures

DOCUMENT-IDENTIFIER: US 6449356 B1
TITLE: Method of multi-media transaction processing

Application Filing Date (1):
19980526

Brief Summary Text (5):
Often the organization disseminates a single telephone number to its customers and
to the public in general as a means of contacting the organization. As calls are
directed to the organization from the public switch telephone network (PSTN), the
automatic call distribution system directs the calls to its agents based upon some
algorithm, typically based upon availability. For example, where all agents are
consider equal, the automatic call distributor (ACD) may distribute the calls based
upon which agent position (telephone) has been idle the longest.

Brief Summary Text (6):
In order to distribute incoming calls from the PSTN to the available agents, the
interaction of a controlling computer with a switching fabric of the ACD becomes
essential. Often a connection of the ACD to a local PSTN is in the form of a number
of trunk connections. Each of the trunk connections is monitored by the controller
for incoming calls. Where a call is detected, the controller searches for and
selects an idle agent. Upon selecting an agent, the controller instructs the switch
to form a connection between the incoming trunk and selected agent.

Brief Summary Text (8):
In other systems, the ACD of an organization may receive calls directed to
different call targets over the same trunk lines. In such a case, the call target
may be identified to the ACD by a pulse code modulated (PCM) signal transferred
from the PSTN to the controller of the ACD by a dialed number identification
service (DNIS) operating from within the PSTN.

Brief Summary Text (9):
In systems associated with service organizations, where many calls are received and
handled by many agents, it may be important for an agent to have ready access to
customer files. In such a situation, a database is maintained of existing
customers. Customer records may be displayed on agent terminals as the agents
converse with specific customers. In some cases, the customer may be identified to
the database for display of records on the terminal by the agent entering a
customer identifier into a keyboard associated with the terminal. Alternatively,
the controller of the ACD may transfer an identifier of the customer to the
database based upon an automatic number identification (ANI) facility, operating
from within the PSTN.

Brief Summary Text (10):
Where ANI is used, the controller of the ACD receives the ANI digits (identifying
the caller via the caller's telephone number) at the same time the call arrives
from the PSTN. Upon selecting an agent, the controller may transfer a call to a
queue of the selected agent (or group of agents) or directly to the selected agent.
At the same time that the call is delivered to the agent, the controller sends an

identifier of the selected agent and ANI number of the customer to a controller of the database (the host). The host, in turn, displays the customer records on a computer monitor of the terminal of the selected agent at the same time the call is delivered.

Brief Summary Text (11):
While the existing method of ACD operation is relatively satisfactory, it is not readily adapted to inquires from customers arriving by fax or via the Internet. Accordingly, a need exists for a means of adapting ACD operation to a mult-imedia environment which includes voice, data, the Internet or some combination thereof.

Detailed Description Text (2):
FIG. 1 is a block diagram of an exemplary embodiment of an automatic call distribution ACD system 10 in accordance with the invention. Under the embodiment, the ACD 10 may process customer inquiries (transactions) through any of a number of communication media. For purposes of the invention, an inquiry may be a call received under either a voice or data format. As used herein, a call is not limited to two people conversing over a telephone, but may more accurately be described as including, but not limited to, conventional voice connections, facsimile transmissions, E-mail messages or Internet transmissions.

Detailed Description Text (4):
Calls from customers may be handled by agents associated with the ACD 10. An agent may service calls through an agent station 26, 28 (e.g., a telephone) and associated agent terminal 32, 34. Calls under a voice format may be delivered to an agent station 26, 28 along with a screen pop on the agent terminal 32, 34 of associated customer data. The customer data may be identified by the host based upon ANI information delivered from the PSTN 12 to the switch 24 and transferred to the host in a known manner. Calls delivered under a data format (e.g., fax, E-mail, Internet, etc.) may be delivered by the host 30 as a visual message displayed on a screen of a terminal 32, 34 of the agent assigned to the call.

Detailed Description Text (5):
To facilitate delivery of calls, an owner of the ACD 10 may disseminate, by advertising or otherwise, a call address for delivery of calls. (As used herein, a call may be any message delivered under either a voice or data format.) In the case of calls under a voice format, or facsimile transmissions, the address may simply be a telephone number. In the case of E-mail, the address may simply be an E-mail address. In the case of the Internet, the address may be an address of a website.

Detailed Description Text (6):
Under the embodiment, calls delivered from the PSTN 12 to the ACD 10 under voice format may be handled conventionally. The ACD 10 may include a switch 24 which may be interconnected with the PSTN 12 through a number of trunk lines 42. The PSTN 12 may offer service on the trunk lines 42 in association with services such as ANI or DNIS. Call control, call maintenance, and call set-up may be accomplished over the trunk line itself or over an associated control channel.

Detailed Description Text (7):
DNIS information supplied by the PSTN 12 is useful where inbound calls to the ACD 10 may be directed to any of a large block of telephone numbers assigned to ACD 10. Calls of the block of numbers may be delivered to the ACD 10 through the trunk lines 42 in rotary fashion, so that when the calling party from the PSTN appears, for example, on trunk T1, it can be determined whether the calling party was, in fact, calling the telephone number corresponding to trunk T1 or was, in fact, calling the telephone number corresponding to trunk T2 and was rotated down to the next available trunk, T1. DNIS information in such cases may also be used to help deliver a call to a proper agent or group of agents.

Detailed Description Text (19):

Where the call is a facsimile transmission, a specific inbound telephone number may be used for delivery of the facsimile transmission to the ACD 10. Upon detection of the call, the CPU 36 may send a call arrival message 120 to the host 30 resulting in the creation of a call record. The CPU 36 may detect the call as being a facsimile transmission based upon the DNIS number of the call. Upon detection of such a call, the CPU 36 of the switch 24 may internally capture the facsimile transmission as a data file and transfers the file to the host 30, or route the transmission to an external facsimile storage device 48 as shown in FIG. 1.

Detailed Description Text (24):
As an alternative, calls to a facsimile number of the ACD 10 may be routed directly to the external facsimile storage device 48 through an optional external connection 56. Where facsimile calls are routed through the external connection 56, a controller 58 of the storage device 48 notifies the host 30 of call arrival. Upon detection of call arrival, the host 30 generates a host identifier and associated call record.

Detailed Description Text (29):
For example, the call number 100 may be directed to an unused extension of the switch 24 or to a dummy load 44 connected to a port of the switch. One criteria that may be considered in selecting the call number for processing a facsimile transmission is that the called number in some ACDs must be answered in order for the ACD to assign an agent.

Detailed Description Text (35):
Alternatively, the make call message 100 may be routed to a special purpose call processing application (not shown) in the CPU 36 dedicated for handling such calls. The call processing application may select an agent based upon such criteria as proficiency in handling fax messages, loading of the ACD 10, identity of the fax sender, time of day, or some other agent criteria.

Detailed Description Text (58):
By matching the host identifier 106 of the call status message 130, the host is able to identify the inquiry file created in response to the Internet call transaction. From the agent identifier 138 of the status message 130, the host 30 is able to generate and send to the terminal of the selected agent a summary of the Internet call transaction. The summary may include the caller's Internet address as well as an indicator of the web page from which the call-back was requested and specific inquiry. The indicator of the web-page where the call-back was requested may be important to the agent in understanding the context of the inquiry. For instance, where the owner of the ACD 10 is a manufacturer and the website has many web pages describing many different products, the web-page where the inquiry originated suggests the subject matter of the inquiry. Further, the web-page of the inquiry may also be used by the host 30 is routing the call-back request to the correct agent or group of agents by specifying a particular agent group 110 in the make call request.

Detailed Description Text (70):
Under another embodiment of the invention, call delivery is scheduled based upon resources and estimated time in queue. For instance, some calls (e.g., from a facsimile machine, another computer through a modem, video transmission over an ISDN connection, etc.) must be handled immediately after answering or the call will be terminated by the caller. Answering of calls of these types may be deferred until resources are available. In other cases, delivery of calls from important customers may be expedited based upon the identify of the customer.

Detailed Description Text (72):
In order to expedite the handling of calls, call answering by the switch 24 is scheduled based upon the identity of the caller or destination of the call. In the case where a special telephone number is provided for fax or data transmission, the

destination of the call is determined by DNIS numbers. Calls directed to number designated for fax or data are programmed to allow very limited or no time in queue. Calls of this type to these predetermined telephone numbers are not answered until a resource is available to directly handle the call.

Detailed Description Text (73):
Under the embodiment, call delivery may also be _scheduled_ based upon importance of the call. Important customers may be given the highest priority. Voice calls may be given a second priority. Fax or data transmissions may be given a lowest priority.

CLAIMS:

12. The method of processing multi-media transactions as in claim 11 wherein the step of _simulating_ completion of the outbound call to the call processing application further comprises transferring a call status message to the host including the identity of the assigned _agent_ and requested outbound call.

29. The apparatus for processing multi-media transactions as in claim 28 wherein the means for _simulating_ completion of the outbound call to the call processing application further comprises means for transferring a call status message to the host including the identity of the assigned _agent_ and requested outbound call.

46. The apparatus for processing multi-media transactions as in claim 45 wherein the _simulation_ completion processor which _simulates_ completion of the outbound call to the call processing application further comprises a call status processor which transfers a call status message to the host including the identity of the assigned _agent_ and requested outbound call.

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L1: Entry 1 of 1   File: USPT   Jul 17, 2001

US-PAT-NO: 6263065
DOCUMENT-IDENTIFIER: US 6263065 B1

TITLE: Method and apparatus for simulating central queue for distributing call in distributed arrangement of automatic call distributors

DATE-ISSUED: July 17, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Durinovic-Johri; Sanja	Aberdeen	NJ		
Levy; Yonatan A.	Manalapan	NJ		
Sabinas; Suhasini V.	Marlboro	NJ		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
AT&T Corp.	New York	NY			02

APPL-NO: 09/ 040223   [PALM]
DATE FILED: March 12, 1998

PARENT-CASE:
This application claims priority to U.S. Provisional Patent Application Ser. No. 60/041,077, filed Mar. 18, 1997 of Sanja Durinovic-Johri.

INT-CL: [07] H04 M 3/00

US-CL-ISSUED: 379/266; 379/210, 379/265, 379/309
US-CL-CURRENT: 379/266.03; 379/265.02, 379/309

FIELD-OF-SEARCH: 379/265, 379/266, 379/268, 379/269, 379/272, 379/273, 379/309, 379/210

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

▨▨▨ Search Selected ▨▨▨ | ▨▨▨ Search ALL ▨▨▨ | ▨▨▨ Clear ▨▨▨

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4737983	April 1988	Frauenthal et al.	379/221
☐	4953204	August 1990	Cuschleg, Jr. et al.	379/266

☐	5153909	October 1992	Beckle et al.	379/265
☐	5164983	November 1992	Brown et al.	379/265
☐	5291552	March 1994	Kerrigan et al.	379/266
☐	5299259	March 1994	Otto	379/221
☐	5335268	August 1994	Kelly, Jr. et al.	379/112
☐	5506898	April 1996	Costantini et al.	
☐	5530744	June 1996	Charalambous et al.	
☐	5546452	August 1996	Andrews et al.	
☐	5590188	December 1996	Crockett	379/225

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0 647 051	April 1995	EP	

ART-UNIT: 262

PRIMARY-EXAMINER: Matar; Ahmad

ASSISTANT-EXAMINER: Bui; Bing Q.

ABSTRACT:

Calls may be distributed and load balancing maintained for a distributed automatic call distributor (ACD) system by simulating a central FIFO queue at the central routing point of the system. The simulated FIFO queue either requires that the number of calls in queue and the oldest call waiting time of calls at each automatic call distributor be periodically provided to the central routing point or event-based data be provided on each call answered in the system or not routed by the central routing point. Deviations from FIFO order of service recorded at the simulated FIFO queue may signal the need for requiring a call at another automatic call distributor. With additional information on agents available, the call removal rate may be estimated. Also, delay estimates may be updated based on comparing actual and estimated delays over time. The routing point may be updated with traffic data through, for example, a known telemarketing operations performance management system (TOPMS) or directly from the automatic call distributors via the toll telecommunications network.

57 Claims, 13 Drawing figures

US-PAT-NO: 6359981
DOCUMENT-IDENTIFIER: US 6359981 B1

TITLE: Virtualized computer telephony integrated link for enhanced functionality in call centers

DATE-ISSUED: March 19, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Neyman; Igor	Palo Alto	CA		
Barskyy; Myhailo	San Mateo	CA		
Miloslavsky; Alec	San Carlos	CA		
Bondarenko; Oleg	San Francisco	CA		
Issayev; Valeriy	San Bruno	CA		
Petrov; Andrei	Palo Alto	CA		
Karpenko; Pavel	Walnut Creek	CA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Genesys Telecommunications Laboratories, Inc.	San Francisco	CA			02

APPL-NO: 08/ 950253   [PALM]
DATE FILED: October 14, 1997

PARENT-CASE:
CROSS-REFERENCE TO RELATED DOCUMENTS The present application is a Divisional application of copending patent application Ser. No. 08/928,861, filed Sep. 12, 1997, which is a Continuation-In-Part (CIP) of prior copending patent application Ser. No. 08/869,815, filed Jun. 4, 1997 which is a CIP of copending application Ser. No. 08/802,667, filed Feb. 19, 1997 which is a CIP of copending patent application Ser. No. 08/797,420, filed Feb. 10, 1997. The present application is also a CIP of copending application Ser. No. 08/833,340, and of a copending application having an application Ser. No. 08/891,675, filed Jul. 9, 1997. Titled "Methods in Computer Simulation of Telephony Systems."

INT-CL: [07] H04 M 7/00, H04 M 3/00

US-CL-ISSUED: 379/265.09; 379/221.08, 379/265.01, 379/265.05, 379/265.11, 379/266.07
US-CL-CURRENT: 379/265.09; 379/221.08, 379/265.01, 379/265.05, 379/265.11, 379/266.07

FIELD-OF-SEARCH: 379/219, 379/230, 379/242, 379/258, 379/260, 379/262, 379/265, 379/266, 379/268, 379/198, 379/207, 379/265.01-266.1, 379/221.08, 379/221.09, 370/270, 370/352

U.S. PATENT DOCUMENTS

| | Search Selected | Search ALL | Clear |

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	5452350	September 1995	Reynolds et al.	379/220
☐	5703943	December 1997	Otto	379/265
☐	5742675	April 1998	Kilander et al.	379/265
☐	5757904	May 1998	Anderson	379/265
☐	5838682	November 1998	Dekelbaum et al.	370/401
☐	5848143	December 1998	Andrews et al.	379/219
☐	5878130	March 1999	Andrews et al.	379/265
☐	5884032	March 1999	Bateman et al.	395/200.34
☐	5889774	March 1999	Mirashrafi et al.	370/352
☐	5901203	May 1999	Morganstein et al.	379/88.02
☐	5903631	May 1999	Smith et al.	379/90.01
☐	5905792	May 1999	Miloslavsky	379/265
☐	5960073	September 1999	Kikinis et al.	379/265
☐	5987102	November 1999	Elliott et al.	379/93.17
☐	6026087	February 2000	Mirashrafi et al.	370/389
☐	6046762	April 2000	Sonesh et al.	348/16

OTHER PUBLICATIONS

Definition of "Internet", FNC Resolution, Oct. 24, 1995.*
Definition of "Internet", FNC Resolution, Oct. 24, 1995.

ART-UNIT: 2645

PRIMARY-EXAMINER: Hoosain; Allan

ATTY-AGENT-FIRM: Boys; Donald R. Central Coast Patent Agency, Inc.

ABSTRACT:

A telephony call center has agent workstations having telephones connected to station-side ports of a telephone switching apparatus adapted to receive and switch conventional telephone calls to the telephones, and also computer platforms connected on a local area network (LAN). A processor also connected on the LAN has a wide area network (WAN) port and is adapted to receive and distribute computer-simulated telephone calls from the WAN to computer platforms at the agent stations. At individual agent stations the telephone and computer platform is connected by a Telephone Application Programming Interface (TAPI)-compliant bridge. Status of calls of both types at agent workstations is communicated to a network-level router by the processor having a WAN connection, which may also receive computer-simulated

calls. The router may then make routing decisions based on agent status relative to both kinds of calls.

5 Claims, 8 Drawing figures

DOCUMENT-IDENTIFIER: US 6359981 B1
TITLE: Virtualized computer telephony integrated link for enhanced functionality in
call centers

Abstract Text (1):
A telephony call center has agent workstations having telephones connected to
station-side ports of a telephone switching apparatus adapted to receive and switch
conventional telephone calls to the telephones, and also computer platforms
connected on a local area network (LAN). A processor also connected on the LAN has
a wide area network (WAN) port and is adapted to receive and distribute computer-
simulated telephone calls from the WAN to computer platforms at the agent stations.
At individual agent stations the telephone and computer platform is connected by a
Telephone Application Programming Interface (TAPI)-compliant bridge. Status of
calls of both types at agent workstations is communicated to a network-level router
by the processor having a WAN connection, which may also receive computer-simulated
calls. The router may then make routing decisions based on agent status relative to
both kinds of calls.

Application Filing Date (1):
19971014

Brief Summary Text (11):
In a preferred embodiment of the present invention a telephony call center is
provided, comprising a plurality of agent stations, individual ones of the agent
stations having a telephone having a telephone line port, and a computer platform;
a local area network (LAN) connecting at least some of the computer platforms at
the agent stations; a processor on the LAN having a connection to a wide area
network (WAN) adapted for computer-simulated telephony; and a Telephone Application
Programming Interface (TAPI)-compliant bridge circuit between the telephone and the
computer workstation in at least one of the agent stations. The call center
receives telephone calls at the telephones at the agent stations, and also receives
computer-simulated telephone calls at the WAN connection, and distributes the
computer-simulated calls to computer platforms at the agent stations.

Brief Summary Text (14):
In another aspect of the present invention an agent station for a call-in center is
provided, comprising a computer platform having a first communication port and a
local area network (LAN) adapter, and adapted to receive and interact with computer
simulated telephone calls; a telephone having a telephone line port and a second
communication port; and a Telephone Application Programming Interface (TAPI)-
compliant bridge connecting the second port of the telephone with the computer
platform. In this embodiment the computer workstation is adapted to monitor
transactions and status of the connected telephone via the TAPI-compliant bridge,
and to report the transaction and status on a LAN via the LAN adapter. The computer
workstation is, in preferred embodiments, a multi-media personal computer (PC)
having a video display unit (VDU). In some embodiments an agent may utilize the
TAPI-connected telephone to interact with computer-simulated telephone calls.

Brief Summary Text (15):

In yet another aspect a method for routing calls to individual ones of agent workstations in a call-in center adapted to receive conventional calls to telephones at the agent workstations and computer-simulated telephone calls to computer platforms at the agent workstations is provided, comprising steps of (a) connecting telephones at the agent workstations by a Telephone Application Programming Interface (TAPI)-compliant bridge circuit to the computer platforms at the agent workstations; (b) reporting by the computer platform at agent workstations to a network-level router the status of simulated calls at the computer platform and telephone calls at the telephone, monitored via the TAPI-compliant bridge; and (c) making routing decisions at the router based in part on the reported status of both kinds of calls.

Detailed Description Text (10):
In embodiments of the present invention, T-Server 207 is adapted to cooperate with code executed at individual PCs to route incoming calls. In this unique routing process there are at least two different mechanisms that may be used. In one mechanism, all calls are routed to a single routing point, and each individual routing application registers with that routing point. In this case a record of each call is broadcast on LAN 301, as will be described more fully below, and filtering occurs at each PC router. In a second mechanism there may be a virtual routing point for each PC using a personal router on the LAN. In this second case there is no need to broadcast call particulars on the LAN. This second alternative is typically more expensive than the first, and there are currently rather severe limitations on how many automatic call distribution (ACD) queues or routing points may be allocated on a typical central switch.

Detailed Description Text (61):
Telephone switches at call centers, depending on the model and manufacture, are capable of certain functions in switching, such as Automatic Call Distribution (ACD), queuing, playing recorded announcements to callers, and much more, and typically the functions available, and the manner in which the functions operate is specific to the make and model of the telephony switch.

Detailed Description Text (62):
In addition to all of the above, the systems of interest for the present invention are systems having a CTI link capability, enabling connection of a processor executing one or more usually customer-specific applications. According to the reference incorporated above, CTI involves three areas: (1) Call Control, which includes an ability to control and observe telephony calls, switching features and status, automatic call distribution (ACD) systems and ACD agents, and to use switching resources including tone generators and detectors; (2) Telephone Control, which is an ability to control and observe telephone devices; and (3) Media Access which includes binding telephone calls to other media services.

Detailed Description Text (65):
In simulating a call center and associated elements as represented in FIG. 8 by group 2100, it is necessary to simulate both physical and logical elements. These include, but are not necessarily limited to (a) agents telephones and stations, (b) ACD, (c) ACD groups, (d) ACD queues, (e) incoming trunks, (f) outgoing trunks, (g) abstractions of communication relationship between one or more devices, and (h) communication with user applications.

Detailed Description Text (66):
In the example of FIG. 8, call center group 2100 comprises a software module 2101, termed a Simulated Incoming Call Module (SICM), which emulates incoming calls via one or more trunks 2104 to a switch 2102. The SICM operates with an ACD list, and simulates calls to ACD groups.

Detailed Description Text (67):
Switch 2102 is termed in embodiments of the invention a Simulated Telephony Objects

Module (STOM), and comprises a variety of micro-emulated objects represented here by elements 2130-2132, which represent such as <u>agents, ACD</u> queues, and the like, as listed above.

Detailed Description Text (68):
<u>Agent's</u> telephones and <u>agent</u> stations as micro-emulated objects in a call center <u>simulation</u> will have attributes and statuses including, but not necessarily limited to two-line connections; perhaps a group relationship; and an equipment configuration mode (status when call offered, and status when call released).

Detailed Description Text (76):
As an example of the object-oriented nature of the GUI of FIG. 8, attention is directed to SICM 2101. This software module is a micro-application that, when initiated and operating may simulate calls to STOM 2102. A master SICM is developed that includes all of the characteristics of incoming calls. The master module has input parameters that allow a user to configure the module for certain behavior of interest. As an example, it may be of interest to test an application running as element 2120 against a rush of Christmas shoppers placing calls within a certain time frame at a certain rate, with the calls statistically distributed for a range of products for which agents at the emulated call center are adapted to enter orders and <u>schedule</u> deliveries.

Detailed Description Text (80):
As an example of the versatility of the unique system, there may be, for example, agents for English speakers who call, and agents who speak Spanish for handling calls from Spanish-speaking customers. Certain agents may be trained for certain functions: to sell certain products, for example, or to provide technical assistance in certain situations. There may be, however, multiple instances of a micro-emulated agent. For example, of a Spanish-speaking agent assigned to first shift duty and trained to sell three specific related products. An icon represented agent, then, will have a multiplicity parameter. In setting up a <u>simulation</u> a user may select an <u>agent,</u> set certain parameters, then set the multiplicity parameter so that the call center will behave as though there were, say, twenty such <u>agents</u>.

Detailed Description Text (81):
It will be apparent to those with skill in the art that there are several ways parameters may be accessed and set for a micro-emulated object, such as element 2130, which may, for example, represent an agent having particular attributes. In one embodiment, for example, a selected icon representing a micro-emulated object may be caused to display an associated window in the GUI, and the window will have programming fields wherein a user may access and alter (edit) parameters. If the object is an agent, there may be, for example, a parameter field for language, for product knowledge, for shift assignment, and so forth; and, as indicated above, there may also be a parameter for multiplicity. If a <u>simulated agent</u> having a complete set of behavior parameters is to be represented multiple times in a call center <u>simulation,</u> the multiplicity parameter may be set for "n" instances, then the object will behave in operation of the <u>simulation</u> as "n" objects. The behavior of such objects can be in preferred embodiments, randomized, so the behavior, where there is a range, is not always the statistical average.

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US-PAT-NO: 6205412
DOCUMENT-IDENTIFIER: US 6205412 B1
** See image for **Certificate of Correction** **

TITLE: Methods in computer simulation of telephony systems

DATE-ISSUED: March 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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ASSIGNEE-INFORMATION:

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APPL-NO: 08/ 891675   [PALM]
DATE FILED: September 9, 1997

INT-CL: [07] G06 F 17/50, G06 F 15/173

US-CL-ISSUED: 703/13; 709/226
US-CL-CURRENT: 703/13; 709/226

FIELD-OF-SEARCH: 364/578, 395/500.34, 703/13, 709/226

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

▓Search Selected▓ | ▓Search ALL▓ | ▓Clear▓

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	5359649	October 1994	Rosu et al.	379/220
☐	5384771	January 1995	Isidoro et al.	370/254
☐	5440719	August 1995	Hanes et al.	395/500.34
☐	5598532	January 1997	Liron	395/500.23
☐	5706453	January 1998	Cheng et al.	345/347

☐	5715432	February 1998	Xu et al.		395/500.34
☐	5809282	September 1998	Cooper et al.		395/200.56
☐	5838768	January 2000	Sumar et al.		379/88.14
☐	5870464	February 1999	Brewster et al.		379/219
☐	5892764	April 1999	Riemann et al.		370/401
☐	5917898	June 1999	Bassa et al.		379/133
☐	6012152	January 2000	Douik et al.		714/26

OTHER PUBLICATIONS

OPNET; numbered pp. 1-11 (obtained from www.mil3.com)--package ordered, 1993.*
van Zijl et al: A tool for graphical network modeling and analysis; IEEE Software;
pp. 47-54, 1992.*
COMNET III: product description; (obtained from www.caciasl.com/COMNET); pp. 1-9,
1995.*
Bachmann et al.: NetMod: a design tool for large-scale heterogeneous campus
networks; IEEE J. Selected Areas in Communications; pp. 15-24, 1991.*
Vazquez et al.: Graphical interface for communication network analysis: IEEE Proc.
Electrotechnical Conf.; pp. 1109-1112, 1991.*
Chan et al.: Interactive network planning and analysis on a computer; IEEE Computer
applications in power, pp. 43-47, 1990.*
Lin et al.: A flexible graphical user interface for performance modeling; IEEE
MASCOTS '94; pp. 193-199, 1993.*
Microsoft Computer Dictionary: pp. 162-163, 1991.

ART-UNIT: 273

PRIMARY-EXAMINER: Teska; Kevin J.

ASSISTANT-EXAMINER: Jones; Hugh

ATTY-AGENT-FIRM: Boys; Donald R. Central Coast Patent Agency

ABSTRACT:

A computer simulation system adapted for simulating a telephony call center
comprises individual software modules simulating separate entities of the call
center in the simulated call center, and a graphical user interface (GUI). In the
GUI the individual software modules are presented as icons movable and connectable
on the screen to alter characteristics of the simulated call center. In a preferred
embodiment the simulation system is adapted for testing computer telephony
integration (CTI) applications. In this embodiment one of the software module icons
comprises a (CTI) link interface library adapted to provide communication between
the simulated call center and the CTI application in a manner that the simulated
call center will behave as a specific switch type in a specific instance. Also in a
preferred embodiment one of the individual software modules is a telephony objects
module representing a telephony switch and connected telephony devices, agents, and
associated behavior. In this aspect individual telephony objects are represented in
the GUI as icons that may be selected and added to or subtracted from the telephony
objects module to alter the behavior repertoire of the module.

9 Claims, 1 Drawing figures

US-PAT-NO: 6198739
DOCUMENT-IDENTIFIER: US 6198739 B1

TITLE: Voice extensions in a call-in center employing virtual restructuring for computer telephony integrated functionality

DATE-ISSUED: March 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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Miloslavsky; Alec	San Carlos	CA		
Bondarenko; Oleg	San Francisco	CA		
Issayev; Valeriy	San Bruno	CA		
Petrov; Andrei	Palo Alto	CA		
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APPL-NO: 08/ 949586   [PALM]
DATE FILED: October 14, 1997

PARENT-CASE:
CROSS-REFERENCE TO RELATED DOCUMENTS The present application is a Divisional application of copending patent application Ser. No. 08/928,861 filed on Sep. 12, 1997, which is a Continuation-In-Part (CIP) of prior copending patent application Ser. No. 08/869,815 filed on Jun. 4, 1997, which is a CIP of copending application Ser. No. 08/802,667 filed on Feb. 19, 1997, which is a CIP of copending patent application Ser. No. 08/797,420 filed on Feb. 10, 1997. The present application is also a CIP of copending application Ser. No. 08/833,340 filed on Apr. 3, 1997, and of a copending application having an Ser. No. 08/891,675, filed Sep. 9, 1997. Titled "Methods in Computer Simulation of Telephony Systems".

INT-CL: [07] H04 L 12/64

US-CL-ISSUED: 370/353; 379/265, 455/563, 704/246
US-CL-CURRENT: 370/353; 379/265.01, 455/563, 704/246

FIELD-OF-SEARCH: 370/351, 370/338, 370/241, 370/401, 370/353, 379/88.01, 379/88.02, 379/88.03, 379/88.04, 379/201, 379/207, 379/214, 379/265, 379/308, 379/309, 455/563, 704/246

U.S. PATENT DOCUMENTS

| | Search Selected | Search ALL | Clear |

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	5384829	January 1995	Heileman, Jr. et al.	379/88.26
☐	5604737	February 1997	Iwami et al.	370/352
☐	5757904	May 1998	Anderson	379/265
☐	5884032	March 1999	Bateman et al.	709/204
☐	5884262	March 1999	Wise et al.	704/270
☐	5892764	April 1999	Riemann et al.	370/401
☐	5937057	August 1999	Bell et al.	379/265
☐	5946386	August 1999	Rogers et al.	379/265
☐	6018578	January 2000	Bondarenco et al.	379/265
☐	6046762	April 2000	Sonesh et al.	348/16

ART-UNIT: 262

PRIMARY-EXAMINER: Kizou; Hassan

ASSISTANT-EXAMINER: Elallam; A.

ATTY-AGENT-FIRM: Boys; Donald R. Central Coast Patent Agency

ABSTRACT:

A multi-media call center has agent stations with telephones and multi-media computer platforms, wherein the telephones and computer platforms are connected by a bridge circuit adapted to allow audio data to be shared between the telephones and the computer platforms. The computer platforms are also adapted to process computer-simulated calls. In various embodiments all or portions of calls of either type may be recorded, pre-recorded audio may be played back to callers, the system may respond to pre-determined key phrases uttered by callers, and the system may respond to an agent's voice commands.

17 Claims, 8 Drawing figures

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L9: Entry 9 of 10   File: USPT   Jan 4, 2000

US-PAT-NO: 6012152
DOCUMENT-IDENTIFIER: US 6012152 A
** See image for Certificate of Correction **

TITLE: Software fault management system

DATE-ISSUED: January 4, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Douik; Samir	Sainte Anne de Bellevue			CA
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ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Telefonaktiebolaget LM Ericsson (publ)	Stockholm			SE	03

APPL-NO: 08/ 918100   [PALM]
DATE FILED: August 21, 1997

PARENT-CASE:
CROSS-REFERENCES TO RELATED APPLICATIONS This application is related to provisional
application Ser. No. 60/031,947 entitled, Fault Management System, filed Nov. 27,
1996.

INT-CL: [06] G06 F 11/00

US-CL-ISSUED: 714/26
US-CL-CURRENT: 714/26

FIELD-OF-SEARCH: 714/26, 714/37, 714/31, 379/21, 395/10, 395/12, 395/22, 395/50

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

░░Search Selected░░   ░░Search ALL░░   ░░Clear░░

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	5159685	October 1992	Kung	395/575
☐	5297193	March 1994	Bouix et al.	379/63
☐	5408218	April 1995	Svedberg et al.	340/507
☐	5521958	May 1996	Selig et al.	379/21

| ☐ | 5664093 | September 1997 | Barnett et al. | 714/31 |
| ☐ | 5764726 | June 1998 | Selig et al. | 379/21 |

OTHER PUBLICATIONS

Mercedes Garijo, Andres Cancer and Julio J. Sanchez; "A Multiagent System for Cooperative Network-Fault Management"; PAAM '96; Apr. 24, 1996; p. 279-294.
Toru Kobayashi, Keitaro Horikawa, and Fumiaki Ushida; "An Information Model for Software Operation Systems"; Proceedings of the International Conference on Communications (ICC), Geneva; May 23-26, 1993, vol. 2; pp. 1205-1209.
Takahiro Miyazaki, Hiroshi Fujimoto, Moo Wan Kim, and Massaaki Wakamoto; "Improving Operation and Maintenance for Switching Network"; Communications Technology for the 1990's and Beyond Dallas; Nov. 27-30, 1989, vol. 2 NR; pp. 1149-1153.

ART-UNIT: 275

PRIMARY-EXAMINER: Beausoliel, Jr.; Robert W.

ASSISTANT-EXAMINER: Elisca; Pierre Eddy

ATTY-AGENT-FIRM: Smith & Danamraj, P.C.

ABSTRACT:

A Software Fault Management (SFM) system for managing software faults in a managed mobile telecommunications network. The SFM system includes an Intelligent Management Information Base (I-MIB) comprising a Management Information Base (MIB) and a Knowledge Base (KB) having a functional model of the managed network and a trouble report/known faults (TR/KF) case base. The SFM system also includes an intelligent multi-agent portion having a plurality of agents which process the software faults utilizing the functional model from the I-MIB, case-based information, and other management information. The I-MIB and the intelligent multi-agent portion are compliant with Telecomunications Management Network (TMN) principles and framework. Fault management is both proactive and reactive. The SFM system is made independent of technology-specific implementations by representing the underlying switch design knowledge in a modular and changeable form which is then interpreted by the intelligent multi-agent portion. A clear separation is maintained between the generic procedural inference mechanisms and agents, and the specific and explicit models of the different network elements of a mobile telecommunications network.

26 Claims, 6 Drawing figures

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DOCUMENT-IDENTIFIER: US 5815566 A
TITLE: Apparatus and method for dynamic inbound/outbound call management and for
scheduling appointments

Application Filing Date (1):
19961016

Brief Summary Text (4):
Predictive dialing is a technique for scheduling the dialing of calls to provide an
answered call almost immediately after an agent becomes available from servicing a
previous call.

Brief Summary Text (15):
The present invention provides additional functions for agents to schedule
appointments with the parties called; for example, telephone campaigns to schedule
blood donation appointments. The processor of each telephone station includes means
for generating and changing appointment information and for generating a calendar
using a calendar function. The calendar function is provided to display the dates
for which appointments are available. Once a date is selected and entered into the
telephone station, the available time slots are automatically displayed. The
calendar function automatically updates the appointment database of remaining
available appointments with each appointment scheduled.

Brief Summary Text (16):
Agent productivity is further enhanced by improved scheduling methods. The rate and
time at which outbound calls are dialed closely tracks the rate and times at which
outbound agents become available to respond to the outbound calls.

Brief Summary Text (17):
The telephone system uses predictive dialing techniques to provide optimal call
scheduling with alternative methods for responding to outbound calls which are
completed before an outbound agent is available. A system administrator may choose
to immediately terminate these calls, or to play a recording until an outbound
agent becomes available. The system administrator may also configure the telephone
system and adjust the scheduling rate to reduce the occurrence of these unattended
outbound calls to the level desired.

Drawing Description Text (4):
FIGS. 1a through 1c are screen format diagrams which illustrate scheduling means
that may be displayed on the display device of the system shown in FIG. 1.

Drawing Description Text (5):
FIGS. 2 and 2a are flow chart diagrams for the scheduling method used in the system
shown in FIG. 1, when unattended calls are placed on hold till an operator is
available.

Drawing Description Text (6):
FIGS. 3 and 3a are flow chart diagrams for the scheduling method used in the system

shown in FIG. 1, when unattended calls are immediately dropped.

Detailed Description Text (16):
During any ongoing call, the agent can use the input device 32 to adjust the volume of the call up or down, completely mute the agent's voice transmission, or restore the agent's voice transmission (unmute) when it is muted. Using only the input device 32, the agent can release the call without disconnecting (flash), to simulate the operation of the telephone hookswitch, and disconnect (hangup) from the called party.

Detailed Description Text (26):
A further advantageous feature of the system is the automated calendar tool with which agents schedule appointments for the called parties. This is particularly useful for campaigns such as blood drives, in which successful calls result in appointments. The predictive dialing system maintains an appointment database. Once the calendar tool is initiated, the locations at which the called parties may be served are displayed on the workstation 30 display via a pop-up menu such as that shown in FIG. 1a. The agent enters the party's choice of location via input device 32 and a further pop-up menu, shown in FIG. 1b, displays a monthly calendar in which days having available time slots at the chosen appointment site are highlighted. The agent enters the party's choice of date via input device 32 and a further pop-up menu, shown in FIG. 1c, displays a listing of the available time slots for the chosen date. The system allows multiple appointments to be scheduled for each time slot in accordance with the number of parties actually served at once. If this capability is used, the system automatically updates the calendar function database to keep track of the number of available appointments for each time slot at each location. Finally, the calendar function allows the agent to cancel a previously scheduled appointment using the same pop-up menus described above.

Detailed Description Text (27):
In addition to the new agent functions described in the above description, the predictive dialing system employs improved scheduling methods. These methods result in a high percentage of each agent's time being spent in productive conversation. Another measure of the value of the scheduling method is the frequency with which a live call is established with no agent available to attend the call. The predictive dialing system allows the system administrator to choose from two alternative methods for handling these "unattended" calls. The system can be set up to drop (i.e., disconnect from) a live call as soon as it is determined that no operator is available. Alternatively, unattended calls may be placed in a queue, so that agents are assigned to the queued calls on a first-in, first-out (FIFO) basis as the agents become available.

Detailed Description Text (29):
FIG. 2 shows a flow chart of the scheduling method for the predictive dialing system with a call wait queue. At step 100, the system administrator selects initial operating parameters for the system. The two parameters which are used as to measure the quality of service are 1) the time a called party must wait for an agent after answering the phone and 2) the percentage of time that each agent spends engaged in conversation with called parties. It is desirable to minimize the maximum time that a party must wait while maximizing the number of agents that are attending to called parties at any given time. These goals are conflicting, however, since if the queue of waiting calls is empty then agents are likely to be idle while if agents are being fully utilized, it is likely that clients are spending excessive amounts of time waiting for an operator to become available. To be effective, the system desirably achieves a balance between these two competing goals.

Detailed Description Text (33):
At step 114, the system employs its scheduling method to update the desired maximum

number of called parties waiting for an agent at any given time. Step 114 comprises detailed steps 116 through 132, shown in FIG. 2a. The scheduling method is based upon modelling the predictive dialing system as a time homogeneous Markov process, also known as a birth and death process. This model defines the behavior of the system in terms of its current state without regard to the details of its history at each previous point in time. The birth and death process is described in detail in a textbook by H. M. Wagner entitled Principles of Operations Research, Prentice Hall, 1969, pp 869-875, which is hereby incorporated by reference.

Detailed Description Text (54):
FIG. 3 shows a flow chart of the scheduling method for the predictive dialing system without a call wait queue. At step 200, the system administrator selects initial operating parameters for the system. The two parameters which measure the effectiveness of the system are the percentage of calls which are disconnected because no agent is available, and the number of agents that are engaged in conversation with called parties at any given time. It is desirable that as few callers as possible be disconnected without being served, while the percentage of agent busy time be kept as high as possible.

Detailed Description Text (58):
At step 214, the system employs its scheduling method to update the percentage of lost calls. Step 214 comprises detailed steps 222 through 234. The scheduling method is based on the same model and probability density function as in the system with a waiting queue, with one exception. The probability of having n calls in the system is zero for all n greater than S, the number of agents.

Detailed Description Text (74):
FIGS. 6A-6B illustrate a method of entering appointments. Each terminal 30 performs terminal routines in step 315, and displays an universal scheduler screen having blank areas for inputs on the display screen of an agent's terminal in step 320. If the agent is an inbound agent, as determined in step 325, the inbound agent's terminal 30 receives inbound caller information from the input device 32 by entry from the inbound agent in step 330. The information may be obtained from the inbound agent's conversation with the calling party. The terminal 30 displays the inputted caller information of the calling party in the blank areas of the universal scheduler screen in step 335.

Detailed Description Text (75):
If the agent is determined in step 325 to be an outbound agent, the outbound agent's terminal 30 receives dialer information automatically from the dialer information area of the server memory upon connection of the outbound call to the called party in step 340. Upon the outbound agent eliciting the called party to agree to make an appointment, the outbound agent enters a MAKE APPOINTMENT command at the input device 32 at step 350. In response to the MAKE APPOINTMENT command, the terminal 30 copies the dialer information received from the server 20 to a memory buffer in the memory of terminal 30 in step 355, and the terminal 30 displays automatically the dialer information of the called party from the memory buffer in the blank areas of the universal scheduler screen in step 360.

Detailed Description Text (77):
The terminal 30 then receives a time slot selection command to schedule an appointment in step 385, and generates and displays a dialog box in step 390 confirming a scheduled appointment by displaying a selected date and time in a box or window on the display. The terminal 30 returns in step 395 to display the universal scheduler screen and party information, and may receive a SAVE APPOINTMENT command from input device 32 in step 400. In response to the SAVE APPOINTMENT command, the terminal 30 saves the scheduled appointment and party information in the appointment information area of terminal memory. This information may be uploaded to the data source 10 at the end of the campaign day to update the appointment and party information in the data source 10 for subsequent

downloading from the data source 10 to the server 20 on the next campaign day. The terminal 30 may then receive a termination command in step 410 to terminate the calendar command, and the terminal 30 returns to a dialer screen in step 415, such as an agent activity screen as shown in FIG. 4. Each agent may also delete or reschedule appointments in the server memory.

Detailed Description Text (78):
As appointments are made, edited, or cancelled by agents, the server 20 updates the appointment information in the appointment database in the server memory. The server 20 may also perform at least one download of the updated appointment information to the dialer 50 during the campaign day. The predictive dialing system may also remind agents of scheduled appointments for a campaign day. At the beginning of each campaign day, the download of appointment information from the appointment database of the data source 10 to the server 20 also includes a file for use by the server 20 to generate a reminder of upcoming appointments of parties with the appropriate agents.

Detailed Description Text (79):
According to an alternative embodiment, the predictive dialing system of the present invention employs a method as shown in FIG. 7 for controlling and conducting a campaign, day to day, for a scheduled or specified duration of time, such as a few weeks or months, by daily beginning a campaign day in step 420, downloading information such as dialer information and appointment information from the data source 10 to the server 20 in step 425, designating each agent in step 430 as either an inbound agent or an outbound agent in the agent database of the server memory, having the outbound agents at the beginning of the campaign day log on to the server 20 in step 435, performing call processing routines in step 440, continuing in the step 445 to perform step 440 if the campaign day has not ended, and uploading the campaign day activities from the server 20 to the data source in step 450, including changes in the appointment database by the making, editing, or canceling of appointments during the campaign day.

Detailed Description Text (80):
The performing of call processing routines in step 440 includes, as illustrated in FIG. 7, the performance of a predictive dialing routine in step 470 concurrent with the performance of an outbound call processing routine in step 480 concurrent with the performance of an inbound call processing routine in step 490 such as to convert outbound agents to inbound agents to address inbound calls. Briefly, the predictive dialing routine in step 470 controls the automatic dialing of outbound calls by the dialer 50, the outbound call processing routine in step 480 connects available outbound agents to the outbound calls, and the inbound call processing routine in step 490 converts outbound agents to inbound agents when needed and connects available inbound agents to inbound calls. Steps 470-490 are performed concurrently by the predictive dialing system of the present invention, as inbound and outbound calls occur concurrently during each campaign day, and the predictive dialing methods of the present invention update the scheduling and dialing of outbound calls during the campaign day as the inbound and outbound agents address calls in the campaign.

Detailed Description Text (108):
For agent scheduling, the Agent Profile screen as shown in FIG. 12 allows the system administrator to setup agents in the predictive dialing system. Using the Agent Profile screen, the system administrator may identify each agent to the system by name and agent number, as well as provide information about each agent to authorized administrators. Every user of the predictive dialing system is setup in the system via the Agent Profile screen before they are able to log on.

Detailed Description Text (114):
For each user the following six items may be entered: Agent Name; Agent Number from 1 to 129; Agent Status, which specifies each agent as either inbound (I) or

outbound (O) at the beginning of the campaign day; Campaign Identification (ID) number, which is a campaign number that the agent is assigned to work on, and the agent may be reassigned by the system administrator to a different campaign using a Reassign Agent command; ACD Group, with agents grouped in automatic call distribution (ACD) groups with each ACD group assigned an ACD group number to be entered in this field; and Telerecruiter Code, a 10 digit number assigned to each agent that is unique. The Telerecruiter code is used for personnel identification functions.

CLAIMS:

1. A telephone system providing appointment scheduling having a private branch exchange (PBX) for connecting a plurality of telephone stations to a telephone line, each of said telephone stations being assigned to one of a plurality of agents, the telephone system comprising:

a processing unit including:

associated memory and stored programs for storing appointment information, the appointment information including appointment entries having dates and times, for monitoring outbound and inbound calls and for storing therein a current status of each agent as being either an inbound agent or an outbound agent;

detecting means for detecting an inbound threshold condition signifying the need for redesignating in the memory an available outbound agent as an inbound agent for answering an inbound call;

notifying means for notifying the available outbound agent of the inbound call prior to redesignation;

redesignating means for redesignating in the memory the current status of the available outbound agent as an inbound agent; and

assigning means for assigning and connecting the available outbound agent having its current status redesignated in the memory as an inbound agent for answering the inbound call; and

each of the plurality of telephone stations including:

a voice communication device for facilitating voice communications by said respective one of said plurality of agents with an inbound or outbound call connected thereto through said telephone line;

a display;

an input device; and

a processor responsive to input signals representing commands for execution by said processor, including a call data command, a calendar command and an appointment command, from the respective input device, the processor responsive to the appointment command for generating and storing a plurality of appointment entries, the processor responsive to the calendar command for generating a calendar screen on the respective display of the respective telephone station and for generating and editing the appointment information in the associated memory, and the processor responsive to the call data command for displaying data relating to inbound and outbound calls originating from and connected to the respective agent.